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Houses Built on Sand

(Continued from page 655)

working chamber were constructed. Inside, the minimum height of a working chamber was about 5 feet. Exteriorly, the side wall of the working chamber had vertical surfaces, but on the interior the surfaces all inclined towards the center, from the bottom up.

The several caissons were provided with a steel tubular shaft, 3 feet in diameter. This was located amidships and extended upwards from the roof of the working chamber. It is a necessary adjunct to the pneumatic caisson. The caissons were, of course, built up, section by section, from the roof of the working chamber.

The eight big caissons were sunk, little by little, with the aid of compresed air. There were several pipe connections to each, one for high-pressure air and the other for low-pressure. In addition there were the air-vent, the electric-transmission, and the water-pressure pipes. On the exterior end of a caisson, two timbers were arranged vertically to serve as guides.

The sealing of the spaces between caissons had to be done in a most thorough manner, as the success of the whole cofferdam, both during construction and later, largely depended upon this work. The vertical timbers serving as guides were 8 x 8 inches in cross-section. About 2 inches was the depth of insertion into one caisson. The next caisson simply abutted against them. This left an interval between caissons of about 6 inches. Between the two timbers, this interval was ultimately filled with clay. That is, clay was rammed into this space by means of a ram, vertically operated by means of a pile driver. On the side next the excavation, there was a 6-inch interval, extending from the nearby timber to the exterior limit of the caissons.

A Bicycle for City Use

(Continued from page 641)

holding his own with the racers who were grinding out the laps at a pace of about twenty miles per hour. Only at the turns did he have any trouble. The banks were too steep for the pace at which the machines were traveling. Even the full-sized bicycles exhibited a tendency to skid down hill and the new machine slipped so badly that the rider was obliged to keep to the level part of the track, at the inside of the curve. Nevertheless he circled around for a full mile close to the pack of contestants who were unaware of the strangely distorted wheel that was trailing them.

The rider of this odd bicycle was Mr. C. H. Clark, who invented the machine, not for racing puposes nor as a circus freak, but for real practical everyday service.

Recently, Mr. Clark called at the offices of the SCIENTIFIC AMERICAN and invited the editor to have a ride.

"Why have you built such a curious wheel?" he was asked. "What advantages does it possess over the ordinary bicycle?"

"Here is the answer," replied the inventor, pointing to his machine. "I did not have to leave the wheel at the curb and invite you down to the street to see it. I brought the machine up with me, not in the freight lift, but in a crowded passenger elevator, and neither the starter nor the operator offered the slightest objection."

That tells the story. It is a city man's machinne. It will run easily on paved streets and even on smooth country highways.

Portable Rail Sawing Machines

(Continued from page 641)

angle, leaving the ends of the rail perfectly smooth and straight. The reducing gear is mounted on the slide, supporting the saw blade. The automatic feed lowers the saw at the proper speed for cutting through the head or base of the rail. A friction nut on the feed screw can be quickly released to feed the saw by hand through the web of the rail or in the return of the slide by means of a feed screw crank.

The saw blade is driven by an adjustable steel sprocket engaging the periphery of the saw blade, insuring a positive feed. The greatest possible capacity is thus obtained from both new and recut saw blades. Our photograph shows the small nut necessary to hold the saw blade on its arbor, no large driving collar being necessary which would tend to reduce the blade capacity. The steel sprocket is adjustable to care for worn or recut blades.—*F. C. Perkins.*